

present first-order stations had complete records for the entire period and the remaining 101 stations, many of which had records for 20, 30 and 40 years, were reduced to the basic period either by interpolating the monthly amounts for the missing years directly from charts of monthly totals of precipitation or by correcting the shorter periods to the full 50 years by the usual methods of comparison with the data from near-by stations. The total number of stations is 197.

The SUPPLEMENT also contains for each station the consecutive 14-day sums of the actual unsmoothed precipitation, from the beginning of January to the last fortnight of the year, which naturally contains 15 days.

An error is noted on page 30 (Erie, Pa.), viz, the annual total given as 39.36 inches should be 36.93 inches.—A. J. H.

#### RAINFALL OF 1930 IN ALASKA

Whereas extreme drought prevailed over large areas in continental United States during 1930, the Territory of Alaska seems to have had generous rains. Rainfall measurements in that Territory have not given, as yet, dependable averages except at individual stations. The rainfall on the average for Alaska during 1930, as computed from stations having a full year's record, may be placed at 34.42 inches; that amount is considerably more than the probable annual average for the Territory. A recent contribution to this REVIEW<sup>2</sup> places the mean annual precipitation of fully two-thirds of the Territory at less than 20 inches. It may be remembered that the precipitation of Alaska is heaviest along the southeast coast and lightest in the interior valleys; thus the mean for coastal Alaska at Juneau is 81.6 inches, and for Fairbanks, near the Yukon, but 11.7 inches. The departure from these means for 1930 was +15.8 inches for Juneau and +5.3 for Fairbanks.—H. C. Hunter.

#### THE INTERNATIONAL ICE PATROL SEASON OF 1930<sup>3</sup>

The United States Coast Guard is gradually accumulating meteorological and oceanographic data for the region of the Grand Banks that must be of the greatest value to future students of navigation in that fog and ice infested region. The report for 1930 is already at hand and fully measures up to the standard set for previous years.

Icebergs in 1930 appeared off the Grand Banks of Newfoundland very much earlier than usual; accordingly, on February 11, the *Tampa* left Boston, Mass., in obedience to orders from United States Coast Guard headquarters, to make an ice-observation cruise. The *Tampa* reached the Tail of the Grand Banks 48 days earlier in the year than the first ice-patrol vessel did in 1929. The *Tampa* was relieved of the patrol duty by the *Mojave* on February 27, and the last-named in alternation with the *Modoc*, took on the patrol work for the remainder of the season.

In May there were remarkably few bergs off the eastern edge of the Grand Banks. This failure of berg supply, as much as anything else, caused the extraordinarily ice-free conditions that were enjoyed south of the forty-sixth parallel throughout the remainder of the season. The season closed on June 10, unusually early.

Capt. Cecil M. Gabbett, commanding the Ice Patrol, commenting on the season remarks as follows:

There was a marked deficiency of ice south of the Tail of the Grand Banks, as in 1927 and 1928. In 1930, only six different bergs drifted south of the forty-third parallel, the latitude of the Tail. This small number can be attributed partly to the unusually small amount of field ice reported this year from southeast of Newfoundland and partly to the narrowness of the southward-flowing cold stream off the eastern edge of the Grand Banks. Both of the above factors in turn doubtless depend upon the winds and the weather conditions that prevailed north of Newfoundland and Labrador during the preceding winter months. \* \* \* After May 24 no bergs were sighted or reported, except north of the Grand Banks and along the Newfoundland coast in the vicinity of Cape Race and St. John's.

Throughout the season, the usual extension of cold water to the westward around the Tail of the Banks was largely absent.—A. J. H.

Temperature and visibility data are given in the subjoined table.

Temperature (F.) and visibility during International Ice Patrol, 1930

	Feb.	Mar.	Apr.	May	June <sup>1</sup>
Maximum.....	44	50	55	67	170
Minimum.....	25	22	29	36	37
Mean.....	33.3	39.6	39.6	47.1	51.6
Visibility less than 2 miles, per cent of time.....	3	26.4	25.8	30.5	40.6

<sup>1</sup> For June 1-12 only.

#### SIMPLIFIED FORMULAS FOR RAINFALL INTENSITY<sup>4</sup>

By C. E. GRUNSKY

Subsequent to the publication of the simplified formulas for rain intensity in the MONTHLY WEATHER REVIEW of October, 1930, the writer's attention was called to the fact that the information obtained from the observer at Dam No. 4, Nuuanu Valley, Honolulu, was incorrect. The total rain in the 24 hours terminating at 5 p. m. on January 16, 1921, was only 12 inches and not 20 inches. Consequently the illustration is at fault and should be ignored.

However, on the same day 20.15 inches of rain fell at Maunawilli Ranch about 2 miles to the east on the windward side of the mountain.

Furthermore, on November 18, 1930, an automatic recorder belonging to the Geological Survey and situated in Moanalua Valley measured 15.2 inches of rain in three hours and 5.6 inches in one hour.

Based on this rain, the value of *C* in the appropriate formula should be taken at 5.6 and the probable maxi-

imum rain in any single minute was  $5.6 = \sqrt[3]{0.0167} = 1.4$  inches.

<sup>4</sup> Supplement to article in the MONTHLY WEATHER REVIEW for October, 1930.

<sup>1</sup> Fitton, Edith M.: The climates of Alaska, MONTHLY WEATHER REVIEW 58:85-103.  
<sup>2</sup> U. S. Treasury—Coast Guard Bulletin No. 20, Washington, 1931, 50 pp., numerous charts and tables.